

**What is Claimed is:**

1. A videoconferencing method using Quality of Service (QoS) and/or bandwidth allocation in a Regional/Access Network (RAN) that provides end-to-end transport between an Application Service Provider (ASP) and Customer Premises  
5 Equipment (CPE), the method comprising:  
    receiving a request for a videoconference designating a plurality of participants;  
    requesting a desired QoS and/or bandwidth allocation for the videoconference for the plurality of participants from the RAN using at least one Application  
10 Programming Interface (API) call responsive to the received request for a videoconference; and  
    activating the videoconference for the plurality of participants using the desired QoS and/or bandwidth allocation.
- 15 2. The method of Claim 1 wherein requesting a desired QoS and/or bandwidth allocation is preceded by requesting capabilities associated with at least one of the participants from the RAN and selecting the desired QoS and/or bandwidth allocation based on the capabilities.
- 20 3. The method of Claim 1 wherein requesting a desired QoS and/or bandwidth allocation is preceded by authenticating the ASP with the RAN.
- 25 4. The method of Claim 1 wherein the method further comprises receiving confirmation of the request for a desired QoS and/or bandwidth allocation from the RAN and wherein requesting a desired QoS and/or bandwidth allocation comprises transmitting a modify QoS and/or bandwidth allocation message including updated QoS and/or bandwidth allocation information for the videoconference for the plurality of participants from the ASP.
- 30 5. The method of Claim 1 wherein activating the videoconference comprises establishing application flows associated with the videoconference for the plurality of participants using a Session Initiation Protocol (SIP) or an H.323 standard compliant protocol exchange.

6. The method of Claim 1 wherein receiving a request for a videoconference comprises receiving a request for a videoconference from one of the plurality of participants that specifies a subsequent start time for the videoconference and wherein activating the videoconference comprises activating the videoconference  
5 at the subsequent start time.

7. The method of Claim 1 further comprising the following performed after activating the videoconference:  
deactivating the videoconference for the plurality of participants; and  
10 notifying the RAN that the desired QoS and/or bandwidth allocation for the videoconference is no longer desired.

8. The method of Claim 1 further comprising using a Broadband Remote Access Server (BRAS) in the RAN to allocate the desired QoS and/or bandwidth  
15 allocation.

9. The method of Claim 7 wherein deactivating the videoconference comprises terminating the application flow associated with the videoconference for the plurality of participants using a Session Initiation Protocol (SIP) or an H.323  
20 standard compliant protocol exchange and wherein notifying the RAN comprises transmitting a terminate QoS and/or bandwidth allocation message for the application flow for the plurality of participants to the RAN.

10. The method of Claim 1 wherein the videoconference has an associated  
25 application flow for video and an associated application flow for audio and wherein requesting a desired QoS and/or bandwidth allocation comprises requesting a different desired QoS and/or bandwidth allocation for the video application flow and the audio application flow.

30 11. The method of Claim 10 wherein activating the videoconference comprises assigning a first flow identifier to the video application flow and a different second flow identifier for the audio application flow.

12. The method of Claim 11 wherein the first flow identifier and the second flow identifier comprise any combination of layer 2 and/or layer 3 protocol header fields.

5 13. The method of Claim 10 wherein the videoconference has an associated application flow for control signals and wherein requesting a desired QoS and/or bandwidth allocation further comprises requesting a desired QoS and/or bandwidth allocation for the control signal application flow.

10 14. The method of Claim 10 wherein an initiating ASP activates the videoconference and wherein at least one of the plurality of participants is associated with a different ASP network from the ASP network associated with others of the plurality of participants and wherein requesting a desired QoS and/or bandwidth allocation further comprises transmitting a desired QoS and/or bandwidth allocation  
15 for the videoconference for the at least one of the plurality of participants to an RAN associated with that at least one of the plurality of participant via the different ASP network.

15 15. The method of Claim 10 wherein one of the plurality of participants separately initiates its participation in the videoconference with the ASP.

16. The method of Claim 10 wherein the audio application flow has a higher desired QoS than the video application flow and wherein the audio application flow has a lower bandwidth allocation than the video application flow.

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17. The method of Claim 10 wherein the CPE comprises a Customer Premises Network (CPN) that includes a Routing Gateway (RG) and wherein the method further comprises:

30 receiving at the RAN a modify QoS and/or bandwidth allocation message including updated QoS and/or bandwidth allocation information for the videoconference for the plurality of participants;

identifying the participants and at least one RG associated with the participants;

establishing the video and audio application flows for the identified participants;

updating the RAN with the updated QoS and/or bandwidth information for the established application flows; and

5        sending updated QoS and/or bandwidth information for the established application flows to the identified at least one RG.

18.     The method of Claim 17 further comprising sending an acknowledgment message responsive to receipt of the modify QoS and/or bandwidth allocation message from the RAN to the ASP as confirmation of the request for a  
10        desired QoS and/or bandwidth allocation from the RAN.

19.     The method of Claim 17 further comprising establishing an application flow for control signals associated with the videoconference.  
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20.     The method of Claim 17 further comprising the following performed at the at least one identified RG and/or the RAN:

receiving packets associated with the video and/or audio application flow;  
classifying the received packets as associated with the video or audio  
20        application flow; and

forwarding the received packets based on the QoS and/or bandwidth allocation for the video application flow for packets associated with the video application flow and forwarding the received packets based on the QoS and/or bandwidth allocation for the audio application flow for packets associated with the audio application flow.  
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21.     The method of Claim 20 wherein forwarding the received packets comprises routing packets associated with the audio application flow through a higher priority queue and packets associated with the video application flow through a lower priority queue having a priority lower than the higher priority queue.  
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22.     The method of Claim 20 wherein the audio application flow has a lower bandwidth allocation than the video application flow.

23. The method of Claim 20 wherein the application flows are associated with at least one point-to-point protocol session.

24. The method of Claim 20 wherein the at least one RG comprises an xDSL modem.

25. The method of Claim 20 further comprising mixing application flows from the plurality of participants.

26. The method of Claim 25 wherein mixing application flows comprises combining audio application flows from the plurality of participants and selecting the video application flow from one of the plurality of participants having a largest amplitude in its corresponding audio application flow.

27. The method of Claim 20 wherein the at least one identified RG includes an Application Level Gateway (ALG).

28. The method of Claim 27 further comprising associating at the ALG a Differentiated Services Code Point (DCSP) or other QoS mechanism with received packets associated with the videoconference to map the received packets to the video application flow or the audio application flow.

29. The method of Claim 20 wherein at least one identified RG uses a Demilitarized Zone (DMZ) in association with a QoS mechanism to map the received packets to the video application flow or the audio application flow.

30. The method of Claim 1 wherein requesting a desired QoS and/or bandwidth allocation comprises requesting a desired QoS and/or bandwidth allocation from a plurality of RANs associated with the videoconference.

31. The method of Claim 1 wherein the desired QoS and/or bandwidth allocation for the videoconference for the plurality of participants comprises at least a first QoS and/or bandwidth allocation for a first one of the plurality of participants

and a second different QoS and/or bandwidth allocation for a second one of the plurality of participants.

32. The method of Claim 1 wherein requesting a desired QoS and/or bandwidth allocation for the plurality of participants comprises at least sending a first request associated with a first one of the plurality of the participants to the RAN and sending a second request associated with a second one of the plurality of the participants to the RAN.

33. A videoconferencing method using Quality of Service (QoS) and/or bandwidth allocation in a Regional/Access Network (RAN) that provides end-to-end transport between an Application Service Provider (ASP) and a Customer Premises Equipment (CPE), the method comprising:

- receiving at the RAN a modify QoS and/or bandwidth allocation message for a videoconference for a plurality of participants;
- identifying the participants and at least one CPE associated with the participants;
- establishing video and audio application flows for the identified participants;
- updating the RAN with QoS and/or bandwidth information for the established application flows based on the received modify QoS and/or bandwidth allocation message; and
- sending the QoS and/or bandwidth information for the established application flows to the identified at least one CPE.

34. The method of Claim 33 wherein updating the RAN comprises the usage of at least one Application Programming Interface (API) call.

35. The method of Claim 34 wherein receiving at the RAN a modify QoS and/or bandwidth allocation is preceded by receiving at the RAN a request to identify capabilities associated with at least one of the participants from the ASP and providing the requested capabilities to the ASP.

36. The method of Claim 34 wherein receiving at the RAN a modify QoS and/or bandwidth allocation is preceded by receiving at the RAN authentication from the ASP.

5 37. The method of Claim 34 further comprising sending an acknowledgment message responsive to receipt of the modify QoS and/or bandwidth allocation message from the RAN to the ASP as confirmation of the request for a desired QoS and/or bandwidth allocation from the RAN.

10 38. The method of Claim 34 further comprising establishing an application flow for control signals associated with the videoconference.

39. The method of Claim 34 wherein the CPE comprises a Customer Premises Network (CPN) that includes a Routing Gateway (RG) and wherein the  
15 modify QoS and/or bandwidth allocation message specifies different QoS and/or bandwidth allocations for the video and audio application flows and wherein the method further comprises the following performed at the RG and/or the RAN:

receiving packets associated with the video and/or audio application flow;  
classifying the received packets as associated with the video or audio  
20 application flow; and

forwarding the received packets based on a QoS and/or bandwidth allocation for the video application flow for packets associated with the video application flow and forwarding the received packets based on a QoS and/or bandwidth allocation for the audio application flow for packets associated with the audio application flow.

25 40. The method of Claim 39 wherein forwarding the received packets comprises routing packets associated with the audio application flow through a higher priority queue and packets associated with the video application flow through a lower priority queue having a priority lower than the higher priority queue.

30 41. A videoconferencing system using Quality of Service (QoS) and/or bandwidth allocation in a Regional/Access Network (RAN) that provides end-to-end transport between an Application Service Provider (ASP) and a Customer Premises Equipment (CPE), the system comprising:

means for receiving a request for a videoconference designating a plurality of participants;

means for requesting a desired QoS and/or bandwidth allocation for the videoconference for the plurality of participants from the RAN using at least one

5 Application Programming Interface (API) call responsive to the received request for a videoconference; and

means for activating the videoconference for the plurality of participants using the desired QoS and/or bandwidth allocation.

10 42. The system of Claim 41 further comprising means for receiving confirmation of the request for a desired QoS and/or bandwidth allocation from the RAN and wherein the means for activating comprises means for activating the videoconference for the plurality of participants after receiving confirmation of the request for a desired QoS and/or bandwidth allocation.

15 43. The system of Claim 41 further comprising means for requesting capabilities associated with at least one of the participants from the RAN and means for selecting the desired QoS and/or bandwidth allocation based on the capabilities.

20 44. The system of Claim 41 further comprising means for authenticating the ASP with the RAN.

45. The system of Claim 41 wherein the means for activating the videoconference comprises the usage of a Multipoint Control Unit (MCU) at the ASP.

25 46. The system of Claim 45 wherein the MCU is further configured to mix audio and/or video application flows associated with the videoconference during the videoconference and/or to deactivate the videoconference.

30 47. A videoconferencing system using Quality of Service (QoS) and/or bandwidth allocation in a Regional/Access Network (RAN) that provides end-to-end transport between an Application Service Provider (ASP) and a Customer Premises Equipment (CPE), the system comprising:



means for receiving at the RAN a modify QoS and/or bandwidth allocation message for a videoconference for a plurality of participants;

means for identifying the participants and at least one CPE associated with the participants;

5 means for establishing video and audio application flows for the identified participants;

means for updating the RAN with QoS and/or bandwidth information for the established application flows; and

10 means for sending updated QoS and/or bandwidth information for the established application flows to the identified at least one CPE.

48. The system of Claim 47 wherein the means for updating the RAN comprises means for updating the RAN using Application Programming Interface (API) calls.

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49. The system of Claim 48 further comprising means for receiving at the RAN a request to identify capabilities associated with at least one of the participants from the ASP and providing the requested capabilities to the ASP.

20 50. The system of Claim 48 further comprising means for receiving at the RAN authentication from the ASP.

51. The system of Claim 48 wherein the modify QoS and/or bandwidth allocation message specifies different QoS and/or bandwidth allocations for the video  
25 and audio application flows and wherein the system further comprises:

means for receiving packets associated with the video and/or audio application flow;

means for classifying the received packets as associated with the video or audio application flow; and

30 means for forwarding the received packets based on a QoS and/or bandwidth allocation for the video application flow for packets associated with the video application flow and forwarding the received packets based on a QoS and/or bandwidth allocation for the audio application flow for packets associated with the audio application flow.

52. A videoconferencing method using Quality of Service (QoS) and/or bandwidth allocation in a Regional/Access Network (RAN) that provides end-to-end transport between an Application Service Provider (ASP) and Customer Premises
- 5 Equipment (CPE), the method comprising:
- receiving a request for a videoconference designating a plurality of participants;
  - requesting a desired QoS and/or bandwidth allocation for the videoconference for the plurality of participants from the RAN using a messaging interface responsive
  - 10 to the received request for a videoconference; and
  - activating the videoconference for the plurality of participants using the desired QoS and/or bandwidth allocation.